

REMARKS

Claim 1-6 and 8-10 are pending in the application. Claims 1, 6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Jackson et al., USPN 5,572,344. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al, in view of Yoshida et al., USPN 6,642,884. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al, in view of Hiroshi, USPN 5,995,186.

Applicant has amended claims 1 and 10 to more clearly identify a novel and non-obvious aspect of the invention. No new matter is added.

Claim 1

Claim 1 recites "the first end facing the second end with a discharge gap therebetween" and "wherein when an external voltage is applied between the first and the second electrodes, an axially symmetric electrical field is generated to change the arrangement of the liquid crystal molecules". The plurality of electrodes are paired and disposed on the first substrate. All the recited electrodes are parallel with each other. More specifically, both the first electrode and the second electrode are formed on the first substrate. The discharge gap between the first end and the second end should be isolated, one from the other using, for example, an insulator.

Jackson et al. ('344) do not teach or suggest that a discharge gap is isolated between the first end and the second end. That which the Examiner characterizes as a "discharge gap" in Jackson et al. ('344) is connected by a resistance layer 14.

It is respectfully noted that when an external voltage is applied between the first and the second electrodes, an axially symmetric electrical field is generated to change the arrangement of the liquid crystal molecules. More

specifically, when an external voltage is applied between the first and the second electrodes, an axially symmetric electrical field is generated as the dotted line in FIGs. 5B, 6B, 8A, 9A and 9B. The electric field lines look like a semi-spherical shape.

Jackson et al. ('344) do not teach or suggest that when an external voltage is applied between the first and the second electrodes, an axially symmetric electrical field is generated. At most, the voltages on the electrodes taught by Jackson et al. ('344) create currents which flow across the resistance layer 14. The resulting spatially varying voltage creates a spatially varying electric field (col. 4, lines 6-9 in the "discharge gap" according to the construction given by the Examiner to Jackson, et al.).

It is therefore submitted that amended claim 1 is patentable. Since claims 2-6 and 8-9 directly or indirectly depend from amended claim 1, claims 2-6 and 8-9 are patentable by virtue of their dependency from patentable amended claim 1.

Claim 10

Claim 10 recites "when an external voltage is applied between the four electrodes, an axially symmetric electrical field is generated to change the arrangement of the liquid crystal molecules".

It is respectfully submitted that when an external voltage is applied between the four electrodes, an axially symmetric electrical field is generated to change the arrangement of the liquid crystal molecules. More specifically, when an external voltage is applied between the first and the second electrodes, an axially symmetric electrical field is generated as the dotted line in FIG. 9B. The electric field lines look like a semi-spherical shape.

Jackson et al. ('344) do not teach or suggest that when an external voltage is applied between the four electrodes, an axially symmetric electrical field is generated. At most, the voltages on the electrodes taught by Jackson et al.

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('344) create currents which flow across the resistance layer 14. The resulting spatially varying voltage creates a spatially varying electric field (col. 4, lines 6-9). It is therefore submitted that amended claim 10 is patentable.

Since Jackson, et al. do not teach each and every limitation of the claims, the rejection under 35 U.S.C. 102 should be withdrawn.

The Examiner will also note that some minor corrections have been made to the claims such as replacing the word "axe" with - - axis - - to better comport with English grammar and syntax.

Reconsideration of this application as amended is respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office, fax no. (703)-872-9306 on

February 8, 2005

(Date of Deposit)

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Respectfully submitted,



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